CPCCo Central Plateau Cleanup Company

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Administrative Procedure

CPCC-PRO-SH-40463

PRC-PRO-SH-40463

Ergonomics

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Change Summary

Description of Change

Editorial change consists of updating company terminology (CHPRC to CPCCo) and referenced

documents (PRC to CPCC), as well as an update to the current procedure templates, including spell check and updated table of contents.

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1.0 INTRODUCTION

1.1 Purpose

This procedure provides a process for conducting and documenting ergonomic hazard evaluation and mitigation to support Central Plateau Cleanup Company (CPCCo)-directed work activities. This procedure establishes requirements to identify, evaluate and control workplace conditions presenting potential ergonomic hazards, in efforts to prevent musculoskeletal disorders (MSD).

CPCCo recognizes that transient discomfort is a normal consequence of work and is unavoidable, but discomfort that persists on a daily basis or interferes with activities of work or daily living is an outcome that may be avoided or minimized through the CPCCo ergonomics program.

1.2 Scope

This procedure does not address MSD associated with non-occupational factors.

1.3 Applicability

This procedure is applicable to all CPCCo work activities having the potential to cause occupational-related MSD.

1.4 Implementation

This procedure is effective upon publication.

2.0 RESPONSIBILITIES

Responsibilities associated with this procedure are identified in the process steps.

3.0 PROCESS

Ergonomic assessments are one of the hazard evaluations that fall under the Industrial Hygiene Exposure Assessment (IHEA) process, in accordance with CPCC-PRO-SH-17916, *Industrial Hygiene Exposure Assessment.* CPCCo performs two types of ergonomic evaluations: “Office” and “Field.”

3.1 Office Ergonomic Evaluation And Control

Ergonomic guidelines for computer work stations are identified by the Occupational Safety and Health Administration (OSHA) and the Centers for Disease Control-National Institute of Occupational Safety and Health (CDC-NIOSH). CPCCo uses their questionnaires to determine “Office” ergonomic hazards and mitigations.

CPCCo provides ergonomic mitigations to prevent MSD, as identified and requested by Industrial Hygiene (IH), and provided by Facilities and Property Management (F&PM). F&PM maintains the CPCCo Office Ergonomic catalog of equipment and accessories that are used to mitigate hazards, which includes the following:

- Foot rest
- Foot stool
- Standing pad
- Chair pad (for ease of rolling)
- Wrist rests (keyboard and mouse)
- Keyboard tray,
- 8.5 x 11-inch portrait document holder
- Task light
- Monitor stand
- Variable-height versa desk
- Adjustable office chairs and chair fit sessions

Alternately, project managers may elect to procure ergonomic chairs, furnishings and equipment from their budget without requiring an office ergonomic hazard assessment by IH. Project managers are also asked to procure the following ergonomic equipment and accessories for their staff, with their budget:

- Mice and input devices
- Keyboards
- 11 x 14-inch document holders
- Telephone headsets
- Computer monitors
- New work station furniture

3.1.1 Office Ergonomic Self-Assessment

Actionee	*Step*	*Action*

NOTE: *The self-assessment process identifies when simple adjustments are required to address an worker's concern, such as when:*

- *The chair or monitor height needs adjustment;*
- *Simple accessories are needed;*
- *Overhead light bulbs need deactivation or supplemental task lighting is needed;*
- *A different keyboard or input device (mouse) is needed.*

Office Worker(s)	1.	IF experiencing discomfort or symptoms of soft tissue injury in your office work station, and/or are a new employee or are relocating to a different office, THEN COMPLETE *Office Ergonomic Self-Assessment* (Site Form A-6006-145), AND FORWARD to the IH Programs Office (MSIN T4-53).
TA-Industrial Hygienist (IH)	2.	REVIEW the completed *Office Ergonomic Self-Assessment* AND DETERMINE if the worker needs simple accessories or if they need an office ergonomic evaluation.
	a.	As needed, NOTIFY the project Occupational Safety and Industrial Hygiene (OS&IH) Manager AND/OR SCHEDULE an office ergonomic evaluation AND ASSIST in requesting equipment and accessories identified during the self-assessment.

3.1.2 Office Ergonomic Assessment

The ability to vary posture is key in prevention of MSD. The need for office ergonomic mitigation is related to the amount of time spent in static, or nearly static, postures. CPCCo priority for office ergonomic equipment and accessories from F&PM are as follows:

1) Workers who spend 75% or more of their time at the desk or computer are given priority for office ergonomic equipment and accessories, as they are at greater risk due to limited opportunity for movement. Workers who spend 75% or more of their time at the desk/computer are provided with adjustable office chairs and if requested, sit-stand equipment.
2) Workers with ergonomic-related work restrictions are also given priority for ergonomic accommodations. Accommodations for those with work restrictions are identified to project OS&IH managers, in accordance with CPCC-PRO-HR-048, *Reasonable Accommodation to Work Restrictions.*
3) Workers who spend 50% or less of their time at the desk or computer have a reduced risk of MSD, but are provided with ergonomic accessories. They are also provided adjustable chairs.

Actionee	Step	Action

NOTE: *Monitors, mice, and keyboards may be procured via "Hardware Distribution" with project manager's budget and approval using the PCARD ADP Approval Form (Site Form A-6005-212). Hardware distribution may be accessed with the following link: http://msc.ms.rl.gov/infotech/page.cfm/Products*

Telephone headsets may be procured with project manager's budget and approval using the PCARD ADP Approval Form. For additional phone information, contact the Help Desk, 376-1234, Option 4.

IH /Office Worker

1. COMPLETE *Office Ergonomic Evaluation* (Site Form A-6006-185) with the office worker's assistance.

2. SUMMARIZE evaluation recommendations AND IDENTIFY items that were adjusted or are needed to reduce office ergonomic hazards.

   a. USE the *Ergonomic Office Options* catalog to identify items needed to mitigate ergonomic hazards, AND LIST the items needed in the SWIHD survey.

   b. IF items are not listed in the *Ergonomic Office Options* catalog, THEN DISCUSS that the project manager would need to cover the costs from their budget and work with Procurement to get the item(s).

IH

3. In the SWIHD "Assessor" role, ENTER data from the *Office Ergonomic Evaluation* into SWIHD, in accordance with CPCC-PRO-SH-409, *Industrial Hygiene Monitoring, Reporting and Records Management.*

   a. LIST the IH Programs Ergonomic Technical Authority (TA) in the SWIHD "Industrial Hygienist" role.

      1) As applicable, ATTACH photographs, office ergonomic assessment and/or office self-assessment forms, and other documentation to the survey.

      - If hazards can be evaluated and addressed using the office self-assessment form, the *Office Ergonomic Evaluation* is not required.

Actionee	*Step*	*Action*
Ergonomics TA	4.	REVIEW AND COMPLETE office ergonomic SWIHD survey in the "IH" role.
		a. COMMUNICATE requests for ergonomic accessories and equipment to F&PM for order fulfillment AND INCLUDE the IH who performed the survey and the Office Worker in the request communication.
		b. As applicable, IDENTIFY items in the SWIHD survey that are to be covered by the manager's budget in the communication to F&PM and the Office Worker.
		c. IDENTIFY individuals approved for ergonomic chair fit AND SEND them an announcement identifying dates/times of chair fit.
		d. APPROVE chair invoices for:
		1) Those with an office ergonomic evaluation identifying the need for a new chair; and
		2) Those who have been sent by managers procuring chairs with their own budget, with concurrence from the project OS&IH manager.

NOTE:
- *Head rests are not procured for adjustable Bodybilt office chairs.*
- *BodyBilt chairs have a 10-year warranty. On the underside of the BodyBilt chair is a tag with a serial number, bar code and date of manufacture. If a chair component is not functioning properly and within the warranty period, then the chair may be identified to Procurement for offsite warranty repair.*

F&PM/ Procurement	5.	PROCURE AND MAINTAIN ergonomic chairs and accessories as approved by the Ergonomics TA and/or F&PM.
		a. As needed, PUBLISH the *CHRPC Ergonomic Office Options* catalog to reflect the current selections available.
		b. As feasible, MAINTAIN a store of chairs and ergonomic equipment no longer in use, for repurposing.
		c. As needed, COORDINATE warranty repair for *Bodybilt* chairs.

Actionee	*Step*	*Action*
NOTE:		*The Mission Support Alliance (MSA) contractor provides facility support for installation of ergonomic equipment in CPCCo's General Purpose Facilities. For facilities not supported by MSA, labor resources for installation of ergonomic equipment are coordinated at the facility level by the IH who performed the assessment, with assistance from the facility Building Manager/Administrator.*
F&PM/ Procurement	6.	DELIVER equipment to fulfill the ergonomic requests identified by the Ergonomics TA. a. COORDINATE labor support for installation of ergonomic equipment in HMIS-supported General Purpose facilities. b. IF changes in equipment and accessories are made by F&PM THEN NOTIFY the IH who conducted the survey or the Ergonomics TA so that SWIHD survey may be updated.
IH/Building Administrator	7.	COORDINATE labor support for installation of ergonomic equipment in facilities that are not supported by HMIS, with the Building Manager/Administrator.
IH/Office Worker	8.	As applicable, CONDUCT a followup survey to verify the work station is properly fitted to the worker and that items ordered mitigate ergonomic hazards. a. As needed, CONDUCT periodic followup ergonomic evaluations for individuals identified as requiring periodic evaluation.
IH	9.	As needed, REQUEST the SWIHD Administrator append the SWIHD survey with updated information to identify modifications to the original survey, in accordance with CPCC-PRO-SH-409.
Office Worker	10.	WHEN ergonomic mitigations do not fully address your symptoms of soft tissue injury or you feel pain when performing your work, THEN REPORT the pain or injury to your supervisor AND SEEK Site Occupational Medical Contractor (SOMC) evaluation in accordance with CPCC-PRO-SH-077.
Ergonomics TA/ IH/ OS&IH Programs Manager	11.	WHEN CPCCo ergonomic mitigations do not fully address the Office Worker's symptoms of soft tissue injury or pain, THEN INFORM the OS&IH Programs manager. a. CONTACT the SOMC AND REQUEST they perform an ergonomic evaluation AND/OR, as feasible, that the Office Worker attend the SOMC's workforce conditioning classes. b. PERFORM follow-up ergonomic evaluation when medical referrals are involved to verify the recommendations/activities are effective.

Actionee	*Step*	*Action*
OS&IH Programs Manager	12.	WHEN both the SOMC and CPCCo ergonomic evaluation recommendations fail to reduce the Office Worker's symptoms of soft tissue injury or pain, THEN REFER the office worker to the SOMC for a medical evaluation to determine the office worker's fitness for duty and/or to determine if a work restriction is needed.

3.2 Field Ergonomic Evaluation And Control

CPCCo "Field" ergonomic program elements include:

1) Involvement of workers as informed, active participants;
2) Observation of the work being done and/or interview of individuals performing the work;
3) Recognition of ergonomic risks through use of risk assessment tools (refer to Appendix B, "Ergonomic Assessment Tools")
4) Identification and evaluation of causative factors;
5) Health care for workers who have developed MSD.

The American Conference of Governmental Industrial Hygienists (ACGIH®) has established Threshold Limit Values (TLV®s) for lifting, hand activity, hand-arm vibration, whole body vibration and upper limb localized fatigue. The applicability of lifting and hand activity TLVs is limited to mono-tasks or mono-lifts (see definitions in Appendix A), which does not cover all activities performed at CPCCo. Due to the limited applicability of ergonomic TLVs, supplemental use of ergonomic assessment tools is often required. The evaluator selects a tool appropriate for the work being performed (see list of approved tools in Appendix B).

Tasks with high risks for MSD can be controlled using a combination of engineering and administrative controls.

Engineering controls to eliminate or reduce risk factors include:

1) Use of work method engineering to eliminate unnecessary motions and exertions;
2) Use of mechanical assists to eliminate or reduce exertions;
3) Tool selection to reduce force requirements, holding time, and improve postures;
4) Adjustable workstations that reduce reaching and improve postures.

Administrative controls to reduce risk include:

1) Reduction of exposure time;
2) Sharing the exposure among a larger group of workers;
3) Implementing work standards that permit workers to pause and/or stretch as needed, but at least once per hour;
4) Task rotation so that a worker does not spend an entire shift performing high-demand or high-risk tasks.

Actionee	*Step*	*Action*
Employee(s)	1.	REPORT symptoms of soft tissue injuries resulting from ergonomic stresses to your supervisor, such as from material handling, lifting, and/or tool/equipment use.
	2.	USE mechanical lifting devices for lifting or moving heavy objects when possible.
		a. As needed, REQUEST a second person to assist with lifting large, awkward, or heavy objects.
RM/Line Organization	3.	EVALUATE work areas and tasks to identify potential ergonomic risks including repetition, awkward posture, force, vibration, and contact stress AND REQUEST IH assess tasks/activities that may present risk for MSD.
		a. RESPOND to employee reports of soft tissue injury symptoms in accordance with CPCC-PRO-SH-077.
IH	4.	EVALUATE work activities using an appropriate assessment tool (refer to the list of approved tools in Appendix B) AND INTERVIEW the employee(s) performing the task for their feedback regarding task ergonomic stress.
		a. As needed, COMMUNICATE requirements for taking photographs/videos of workers performing the task to analyze body postures and assess MSD risk.

Actionee	*Step*	*Action*

NOTE: *As part of the ergonomic evaluation, consider task-related factors such as repetition, awkward posture, work area temperature, weight of the load, stability of the load, stability of objects within containers, mechanical advantages (e.g., carts, dollies, hoists), size and shape of a load (e.g., grasping points), time allotted for the task, vibration, and contact stress.*

IH

5. EVALUATE work postures that could present an increased risk of MSD such as:

   - Neck flexion or extension (e.g., forward/backward bending) of the greater than 20 degrees
   - Forward/backward bending of the torso greater than 20 degrees
   - Twisting of the torso
   - Arm abduction (e.g., lifting arm away from the torso midline)
   - Arm adduction (e.g., crossing arm over torso midline
   - Bending/flexing the forearm greater than 90 degrees
   - Raising the elbow above the shoulder
   - Raising the arms above the shoulder
   - Reaching, with forward extension of the torso
   - Wrist flexion or extension
   - Lateral wrist deviation (e.g., from the midline of the arm)
   - Pinch grip
   - Deep bending of the knee, or kneeling (constrained lower body posture)
   - Uneven footing
   - Movements that combine one or more of the above awkward postures

6. DOCUMENT the ergonomic assessment in SWIHD under the *Ergonomic "Field"* tab.

   - SUMMARIZE results of ergonomic risk assessment.
   - CLASSIFY task risk.
   - ATTACH the evaluation tool, photographs, and notes.
   - CONSIDER ergonomic controls identified in Appendix C, "Ergonomic Hazard Controls."

Actionee	*Step*	*Action*
IH	7.	COMMUNICATE the results of the ergonomic assessment with line management and/or the project OS&IH manager, and as needed, the Ergonomics TA AND REQUEST management and worker feedback when identifying short-term and long-range solutions to reduce MSD.
Employee(s)/ RM/ Line Organization	8.	PROVIDE feedback regarding the feasibility of potential ergonomic control options, such as modifications to the task, to the equipment, and/or to the duration of the task.
IH	9.	IDENTIFY AND DOCUMENT hazard controls with user and management input, based on the following hierarchy: a. Elimination or substitution of the hazards where feasible and appropriate b. Engineering controls where feasible and appropriate c. Work practices and administrative controls that limit worker exposures d. Personal protective equipment
RM/Line Organization	10.	To the extent feasible, as determined by OS&IH and management, IMPLEMENT the recommended measures to reduce ergonomic risk. a. IMPLEMENT short-term controls such as task rotation and rest time for muscle recovery, as soon as possible. b. IDENTIFY long-range goals such as equipment and process changes that require budget and planning considerations.
IH/RM/Line Organization	11.	ASSESS the effectiveness of ergonomic hazard controls AND MODIFY controls as needed for continuous improvement.
Employee(s)	12.	IF ergonomic controls do not adequately reduce ergonomic hazards and you still feel pain or experience symptoms of soft tissue injury when performing the task, THEN REPORT the pain or symptoms to your supervisor AND SEEK SOMC evaluation in accordance with CPCC-PRO-SH-077.
Ergonomics TA	13.	REQUEST periodic ergonomic-related injury reports and statistics from Case Management/Worker Compensation to identify occupational groups at risk for repetitive motion and MSD. a. ANALYZE AND COMMUNICATE results of injury statistics to OS&IH managers to focus field ergonomic assessment activities.

Actionee	*Step*	*Action*
OS&IH Manager/ Ergonomics TA	14.	As needed, REQUEST the SOMC perform an ergonomic evaluation of a field activity AND implement their recommendations.
	15.	Periodically REVIEW ergonomic injury information and trends for the projects.
RM/OS&IH Manager	16.	WHEN both the SOMC and CPCCo ergonomic evaluation recommendations fail to reduce the employee's symptoms of soft tissue injury, THEN REFER the employee to the SOMC for a medical evaluation to determine the office worker's fitness for duty and/or to determine if a work restriction is needed.

4.0 FORMS

A-6006-145, *Office Ergonomic Self-Assessment*

A-6006-185, *Office Ergonomic Evaluation*

5.0 RECORD IDENTIFICATION

All records are generated, processed, and maintained in accordance with CPCC-PRO-IRM-10588, *Records Management Processes*.

Name of Record	Submittal Responsibility	Retention Responsibility
Completed *Office Ergonomic Evaluation*, A-6006-145, and/or if used, Completed *Office Ergonomic Self-Assessment*, A-6006-185	SWIHD Administrator	IRM Service Provider
Completed Field Ergonomic Assessment Tool (see Appendix B for list of field assessment tools)	SWIHD Administrator	IRM Service Provider

6.0 SOURCES

6.1 Requirements

10 CFR 851, *Worker Safety and Health Program*

29 CFR 1910, *Occupational Safety and Health Standards*

American Conference of Governmental Industrial Hygienists (ACGIH®) *Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices*, 2016, ACGIH Worldwide Signature Publications, Cincinnati, OH

6.2 References

CPCC-PRO-HR-048, *Reasonable Accommodation to Work Restrictions*

CPCC-PRO-IRM-10588, *Records Management Processes*

CPCC-PRO-SH-077, *Reporting, Investigating and Managing Health, Safety and Property/Vehicle Events*

CPCC-PRO-SH-409, *Industrial Hygiene Monitoring, Reporting and Records Management*

CPCC-PRO-SH-17916, *Industrial Hygiene Exposure Assessments*

6.3 Bases

American Industrial Hygiene Association Ergonomic Committee Ergonomic Assessment Toolkit, 2011*,* American Industrial Hygiene Association (AIHA) Press, Fairfax, VA

CPCC-PRO-WKM-079, *Job Hazard Analysis*

Appendix A - Glossary

Term	*Definition*
Abduction	Movement of a limb or other part away from the midline of the body.
Adduction	Movement of a limb or other part toward the midline of the body.
Duty Cycle	A measure for evaluating repetitive exertions, muscle fatigue and manual materials handling tasks. The cycle of work and recovery periods, often expressed as the percent of time over a work cycle, or a certain time period that force is applied.
Ergonomic Hazard	A physical factor in the environment that potentially harms the musculoskeletal system, such as repetitive motion, manual material handling, work station design, poor body positioning.
Extension	Movement that straightens a joint.
Flexion	Movement that bends a joint.
Frontal Plane	Anatomical boundary that separates the front and back halves of the body.
Mono-Lifting Task	One in which the loads are similar and the starting and destination points are repeated, and this is the only lifting task performed during the day; relates to the ACGIH TLV for Lifting.
Mono-Task	Tasks performed for four or more hours per day, performing a similar set of motions or exertions repeatedly, such as working on an assembly line or using a keyboard and mouse; relates to the ACGIH TLV for Hand Activity.
Musculoskeletal Disorders (MSD)	Injuries and disorders that affect the human body's movement or musculoskeletal system, which include chronic muscle, tendon and nerve disorders caused by repetitive exertions, rapid motions, high forces, contact stresses, extreme postures, vibration and/or low environmental temperature.
Non-Occupational MSD Factors	Non-occupational MSD factors include: rheumatoid arthritis, endocrine disorders, acute trauma, obesity, pregnancy, age, gender, level of physical condition, previous injuries, Diabetes and recreational activities.
Sagittal Plane	Anatomical boundary that exists between the right and left sides of the body. The sagittal plane runs parallel to the longitudinal axis of the body.

Appendix B - Field Ergonomic Risks and Assessment Tools

The major field ergonomic risk factors are high task repetition, forceful exertions, and repetitive/sustained awkward postures. Other risk factors include, but are not limited to:

- Duration of exposure (e.g., number of hours, or percent of the work day)
- Duration of sustained exposure (e.g., percent of the duty cycle)
- Amount of force required to perform the task
- Amount of impacts experienced during the task
- Amount of weight lifted during the task
- Number of repetitions performed
- Type of grip or hand coupling
- Range of postures during movement
- Constrained posture (e.g., whether the work is performed kneeling or sitting)
- Distance an object is lifted or carried
- Reach distance of the worker
- Size and shape of a load
- Vibration and noise
- Contact stresses
- Time allotted for the task
- Lighting, temperature and humidity of the environment
- Surface on which the worker works (e.g., uneven or slippery)

The following tools are approved for use by CPCCo to assist in ergonomic exposure assessment:

Qualitative Screening Tools--Whole Body
WISHA Caution Zone Checklist
WISHA Hazard Zone Checklist
OSHA Screening Tool (Table W-1)
OSHA Video Display Terminal Checklist

Semi-Quantitative—Whole Body
Quick Ergonomic Checklist (QEC)
Rodger's Muscle Fatigue Assessment
Rapid Entire Body Assessment (REBA)
WISHA Ergonomic Hazard Evaluation Checklist

Semi-Quantitative—Upper Limb
Rapid Upper Body Assessment (RULA)

Quantitative—Whole Body
ACGIH TLV for Whole Body Vibration

Quantitative—Upper Limb
ACGIH TLV for Hand Activity (For Mono-Tasks only)
ACGIH TLV for Hand-Arm Vibration
ACGIH TLV for Upper Limb Localized Fatigue

Quantitative—Lifting
ACGIH TLV for Lifting (For Mono-Lifting Tasks only)
WISHA Calculator for Analyzing Lifting Operations
NIOSH Revised Lifting Equation (Recommended Weight Limit or RWL)
NIOSH Lifting Index

Appendix C - Ergonomic Hazard Controls

Control Type	Examples
Engineering Controls	Changing the shape of items or handles to allow easier grasp. Using counterbalances to stabilize loads. Decreasing the distance, height, or weight of objects. Providing mechanical devices such as handcarts, hand trucks, fork trucks, cranes, or hoists. Reducing the weight manually handled. Using of height-adjustable tables/work surfaces. Using height-adjustable stools/chairs.
Work Practices	Optimizing the load location between knee and shoulder level when possible. Distributing a load evenly while keeping it close to the body. Getting buddy assistance/help. Maintaining good physical condition. NOT exceeding physical or mental abilities. Avoiding pushing, pulling or sliding objects instead of lifting. Slowing the pace of repeated forceful activities.
Administrative Controls	Establishing weight or size limits for handling heavy, bulky, or awkward-shaped objects. Establishing time and/or weight limits for workers engaged in activities involving awkward posture, and consideration of the following TLV adjustments. • Decreasing the TLV weight limits by 25% for lifting, while the lower body is constrained. • Decreasing the TLV weight limits by 10-pounds for lifts with asymmetry from the sagittal plane beyond 60 degrees. • Decreasing the TLV weight limits for repetitive lifting by 10% for shifts lasting 10 hours; or 20% for shifts lasting 12 hours. • Limiting lifts in TLV lift zones marked as “no safe limit for repetitive lifting” (e.g., lifting above shoulders), to 3 per hour, with a weight limit 15-pounds per lift. Performing stretch breaks and providing adequate muscle recovery time. Task rotation.
Personal Protective Equipment	Using personal protective equipment to reduce or eliminate ergonomic hazards such as: • Gloves to enhance grip stability on slippery surfaces and/or to minimize vibration, • Hearing protection in high noise areas, and • Clothing appropriate for the prevailing environmental conditions.